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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/725,862	12/01/2003	Kenji Ichikawa	TOWK-015RCE	2792

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EXAMINER	
RUTHKOSKY, MARK	

ART UNIT	PAPER NUMBER
1795	

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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/725,862	ICHIKAWA ET AL.	
	Examiner	Art Unit	
	Mark Ruthkosky	1795	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *7/21/2008*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-9* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-9* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Summary

The request for consideration filed 7/21/2008 has been entered into the application file and considered.

Claim Rejections - 35 USC § 112

The rejection of claims 1-9 under 35 U.S.C. 112, second paragraph, has been overcome by applicant's arguments. Applicant's comments with regard to the statement that a non-contact type of motor is also known as a brushless motor are noted.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

Claims 1-3 and 8-9 are rejected under 35 U.S.C. 103(a) as being unpatentable over Sano (JP 11-062631), in view of Farrell et al. (US 5,522,416.)

The instant claims are to a pressure regulator for fuel cells, which is disposed in a discharge line for discharging an oxidizing agent supplied to a cathode of fuel cells, for controlling a discharged amount of the oxidizing agent to regulate the pressure of the oxidizing agent in the cathode, comprising an opening for passing said oxidizing agent there through, a

valve body for opening or closing said opening; a resilient member for urging a rotational shaft to which said valve body is connected, to turn in a direction to open said opening; a limiting member for limiting an angular position of the valve body which is turned by said resilient member, to keep said opening fully open; and a motor energizable for turning said valve body in a direction to close said opening against resilient forces of said resilient member, wherein when the non-contact type motor is de-energized, the opening is fully open for discharging water from the fuel ceils without consuming electric power, and an opening sensor for detecting a magnetic field from a magnet embedded in said rotational shaft thereby to detect an angular position of said rotational shaft.

The intended use of the regulator has been considered, but is not given patentable weight, as it does not define the product of the invention. The intended use of the regulator does not further limit the regulator. The limitation, "wherein when the non-contact type motor is de-energized, the opening is fully open for discharging water from the fuel ceils without consuming electric power" is an intended use limitation for the system. MPEP 2114 states: APPARATUS CLAIMS MUST BE STRUCTURALLY DISTINGUISHABLE FROM THE PRIOR ART. While features of an apparatus may be recited either structurally or functionally, claims directed to an apparatus must be distinguished from the prior art in terms of structure rather than function. In re Schreiber, 128 F.3d 1473, 1477-78, 44 USPQ2d 1429, 1431-32 (Fed. Cir. 1997.) and MANNER OF OPERATING THE DEVICE DOES NOT DIFFERENTIATE APPARATUS CLAIM FROM THE PRIOR ART A claim containing a "recitation with respect to the manner in which a claimed apparatus is intended to be employed does not differentiate the claimed apparatus from a prior art apparatus" if the prior art apparatus teaches all the structural

limitations of the claim. Ex parte Masham, 2 USPQ2d 1647 (Bd. Pat. App. & Inter. 1987.) The motor is capable of being turned off after opening the valve. The combination of the regulator in a fuel cell does not further limit the regulator.

Sano (JP 11-062631) teaches a regulator comprising an opening for passing a fluid, a valve body for opening or closing said opening; a resilient member for urging a rotational shaft to which said valve body is connected, to turn in a direction to open said opening; a limiting member for limiting an angular position of the valve body; and a motor energizable for turning said valve body in a direction to close said opening against resilient forces of said resilient member (see figures 1-4 and paragraphs 19-21, 25 and 32-38.) The motor is a stepping motor, which is a brushless motor (see paragraph 21.) Sano does not teach an opening sensor for detecting a magnetic field from a magnet embedded in said rotational shaft thereby to detect an angular position of said rotational shaft.

Farrell et al. (US 5,522,416) teaches a pressure regulator having an opening, a valve body, and a motor, including a means for indicating the angular position of a rotor including a magnet fitted to the rotor and a sensor mounted in the housing (see at least claims 1-6.) The motor is a non-contact type motor as it connected through a coupled (see figures 1-2 and col. 4, lines 1-7.) It would have been obvious to one of ordinary skill in the art at the time the invention was made to include a magnet embedded in the rotor and an opening sensor in the regulator of Sano in order to indicate the angular position of a rotor, as taught in Farrell. Embedding the magnet would be considered obvious based on the teaching of fitting the magnet to the rotor.

Further, the references do not teach that when the non-contact type motor is de-energized, the opening is fully open for discharging water from the fuel cells without consuming electric

power." If the intended use of the system is given weight, then it would have been obvious to one of ordinary skill in the art at the time the invention was made to turn off the motor during operation to save energy. The artesian would have found the claimed invention to be obvious in light of the teachings of the references.

Claims 4-7 are rejected under 35 U.S.C. 103(a) as being unpatentable over Sano (JP 11-062631) in view of Farrell et al. (US 5,522,416), as applied in the previous section, and further in view of Dell et al. (CA 2,261,243.)

Sano (JP 11-062631) teaches a regulator comprising an opening for passing a fluid, a valve body for opening or closing said opening; a resilient member for urging a rotational shaft to which said valve body is connected, to turn in a direction to open said opening; a limiting member for limiting an angular position of the valve body; and a motor energizable for turning said valve body in a direction to close said opening against resilient forces of said resilient member (see figures 1-4 and paragraphs 19-21, 25 and 32-38.) Farrell et al. (US 5,522,416) teaches a pressure regulator having an opening, a valve body, and a motor, including a means for indicating the angular position of a rotor including a magnet fitted to the rotor and a sensor mounted in the housing (see at least claims 1-6.) The references do not teach a sealing member is disposed between the bearing and the opening of the regulator. Further, the reference does not teach that the valve body, the rotational shaft and the bearing are made of stainless steel. The reference is silent to the materials that form the regulator.

Dell et al. (CA 2,261,243), however teaches a pressure regulator that is made of stainless steel (claims 1-20, page 2, lines 25-30, page 4, line 3 to page 5, line 20 and page 6, line 24-27.)

The regulator further includes sealing members that radially form a seal with the pressure regulator so as to seal the regulator (paragraph bridging page 4 and page 5.) It would have been obvious to one of ordinary skill in the art at the time the invention was made to make the components of the regulator of Sano out of stainless steel as taught in Dell, as stainless steel is well described in the art to maintain a fluid path at high pressures, while providing a material that is corrosive resistant. It would have been obvious to one of ordinary skill in the art to use stainless steel for a pressure regulator as taught in Dell in order to operate at high pressure.

Further, it would have been obvious to one of ordinary skill in the art at the time the invention was made to include a sealing member between the bearing of the regulator and the rotational shaft of the regulator in order to seal the regulator and prevent the leakage of high-pressure fluid from the regulator. Dell is cited for using sealing members to prevent the unwanted loss of fluid in a pressure-regulated system. The skilled artesian would recognize that a seal is useful for preventing the loss of fluid in a sealed system. The artesian would have found the claimed invention to be obvious in light of the teachings of the references.

Response to Arguments

Applicant's arguments with respect to the claims have been considered but are not persuasive

Applicants respectfully submit that the Sano, Farrell and Dell references, alone or in combination, do not teach or suggest that when the non-contact type motor is de-energized, the opening is fully open for discharging water from the fuel cells without consuming electric power. Applicants respectfully submit that the limitation when the non-contact type motor is de-

energized, the opening is fully open for discharging water from the fuel cells without consuming electric power of claim 1 is a structural limitation of the regulator of the present invention. Applicants believe that the limitation should be given patentable weight.

This argument is not persuasive. The instant claims are to a pressure regulator for fuel cells. The claim is to a pressure regulator. The claim is not to a fuel cell. The claim recites a first intended use of the pressure regulator in the preamble of the claim. A preamble is generally not accorded any patentable weight where it merely recites the purpose of a process or the intended use of a structure, and where the body of the claim does not depend on the preamble for completeness but, instead, the process steps or structural limitations are able to stand alone. See *In re Hirao*, 535 F.2d 67, 190 USPQ 15 (CCPA 1976) and *Kropa v. Robie*, 187 F.2d 150, 152, 88 USPQ 478, 481 (CCPA 1951). In claim one, the body of the claim does not depend on the preamble for completeness. Further, a second intended use of the pressure regulator is found in the body of the claim, "when the non-contact type motor is de-energized, the opening is fully open for discharging water from the fuel cells without consuming electric power." A recitation of the intended use of the claimed invention must result in a structural difference between the claimed invention and the prior art in order to patentably distinguish the claimed invention from the prior art. If the prior art structure is capable of performing the intended use, then it meets the claim. The limitation that defines functions of the regulator at a specific time and under a specific condition clearly notes the use of the regulator and is not a structural feature of the claim.

Applicant further argues that the Sano reference does not teach or suggest a regulator comprising a limiting member, as recited in claim 1. Applicant refers to the limiting member as

a stopper or the like for limiting the rotor position. This argument is not persuasive. The claim does not require a stopper as a limiting member for limiting an angular position of the valve body. The valve is precisely controlled to be in a fully open position. The mechanism that controls the valve is the limiting member since it determines the position of the valve and clearly limits the position. The mechanism limits the valve to a fully open position when desired. No other structure is necessary to meet the claim limitation.

Conclusion

THIS ACTION IS MADE FINAL. Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Examiner Correspondence

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Mark Ruthkosky whose telephone number is 571-272-1291. The

examiner can normally be reached on FLEX schedule (generally, Monday-Thursday from 9:00-6:30.) If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Patrick Ryan can be reached at 571-272-1292. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free.)

/Mark Ruthkosky/

Primary Examiner, Art Unit 1795